

WHAT IS CLAIMED IS:

1. An optoelectronic packaging assembly, comprising:

a submount having a cavity defined by a floor, sidewalls, a back wall, and a front wall, wherein at least one of said sidewalls retains pins, said submount further including
5 an optical input receptacle which extends from said front wall;

a base having sidewalls with top surfaces and a front wall with a slot, wherein said base is configured to receive said submount such that said submount extends over said sidewalls of said base and such that said optical input receptacle extends from said slot; and
an external cover over said submount.

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2. An optoelectronic packaging assembly according to claim 1, wherein said submount is comprised of a liquid crystal polymer.

3. An optoelectronic packaging assembly according to claim 1, wherein said pins have
15 rectangular cross-sections.

4. An optoelectronic packaging assembly according to claim 1, wherein said pins have round cross-sections.

- 20 5. An optoelectronic packaging assembly according to claim 1, wherein said pins are insert molded in said submount.

6. An optoelectronic packaging assembly according to claim 1, further including a raised mount in said cavity.

7. An optoelectronic packaging assembly according to claim 6, further including an electro-optical device on said raised mount.

8. An optoelectronic packaging assembly according to claim 1, wherein said optical input receptacle includes a half-moon shaped slot.

9. An optoelectronic packaging assembly according to claim 1, wherein said base includes a mounting flange having a mounting hole.

10. An optoelectronic packaging assembly according to claim 1, wherein said submount rests on said top surfaces.

11. An optoelectronic packaging assembly according to claim 1, wherein said optical input receptacle extends from a block structure on said front wall of said submount, and wherein said block structure is received in said slot of said front wall of said base.

12. An optoelectronic packaging assembly according to claim 1, further including a thermal-electric-cooler disposed between said submount and said base.

13. An optoelectronic packaging assembly according to claim 12, wherein said thermal-electric-cooler fits into a cavity in said base.

14. An optoelectronic packaging assembly according to claim 13, wherein said thermal-electric-cooler receives electrical power through said pins.

15. An optoelectronic packaging assembly according to claim 1, further including a lower cover inside said submount.

16. An optoelectronic packaging assembly according to claim 1, further including an optical ferrule in said optical fiber input receptacle.

17. An optoelectronic packaging assembly according to claim 16, further including an optical fiber inserted into said optical ferrule.

18. An optoelectronic packaging assembly according to claim 17, further including an electro-optical device in said optoelectronic packaging assembly that is optically coupled to said optical fiber.

19. An optoelectronic packaging assembly according to claim 18, further including an optical spacer that assists said optical coupling.

20. An optoelectronic packaging assembly according to claim 19, further including
clamps for clamping said optical spacer.

21. An optoelectronic packaging assembly according to claim 19, wherein said
5 electro-optical device is on an optical bench that includes an alignment slot for assisting
optical alignment of the electro-optical device with said optical fiber.

22. An optoelectronic packaging assembly according to claim 21, further including
conductors between said pins and said optical bench.

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23. An optoelectronic packaging assembly according to claim 1, wherein said
submount includes a liquid crystal polymer.

24. An optoelectronic packaging assembly according to claim 1, wherein said
15 submount includes a metal.

25. An optoelectronic packaging assembly, comprising:
a submount having sidewalls, a front wall, pins, protrusions, and an optical input
receptacle, wherein said protrusions are dimensioned to receive an optical bench, wherein
20 said walls define a cavity, wherein said walls retain said pins, and wherein said optical input
receptacle extends from said front wall;

a bottom cover having walls configured to receive said submount such that said submount and said bottom cover form an enclosed bottom cavity, and such that said optical input receptacle extends from said bottom cavity; and

a top cover configured to be received on said submount such that said submount and
5 said top cover form an enclosed top cavity.

26. An optoelectronic packaging assembly according to claim 25, wherein said bottom cover includes a mounting flange having a mounting hole.

10 27. An optoelectronic packaging assembly according to claim 25, wherein said submount is comprised of a liquid crystal polymer.

28. An optoelectronic packaging assembly according to claim 25, wherein said pins have rectangular cross-sections.

15 29. An optoelectronic packaging assembly according to claim 25, wherein said pins have circular cross-sections.

30. An optoelectronic packaging assembly according to claim 25, wherein said pins
20 are insert molded in said submount.

31. An optoelectronic packaging assembly according to claim 25, wherein said optical input receptacle includes a half-moon shaped slot.

32. An optoelectronic packaging assembly according to claim 25, wherein said bottom cover includes a mounting flange having a mounting hole.

5 33. An optoelectronic packaging assembly according to claim 25, further including a thermal-electric-cooler disposed in said top cavity.

34. An optoelectronic packaging assembly according to claim 33, wherein said thermal-electric-cooler is electrically connected to at least one of said pins.

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35. An optoelectronic packaging assembly according to claim 25, further including an optical bench on said protrusions.

15 36. An optoelectronic packaging assembly according to claim 35, further including an electro-optic device on said optical bench.

37. An optoelectronic packaging assembly according to claim 36, further including an optical ferrule in said optical fiber input receptacle.

20 38. An optoelectronic packaging assembly according to claim 37, further including an optical fiber inserted in said optical ferrule.

39. An optoelectronic packaging assembly according to claim 38, wherein said electro-optic device is optically coupled to said optical fiber.

5 40. An optoelectronic packaging assembly according to claim 39, further including an optical spacer that assists said optical coupling.

41. An optoelectronic packaging assembly according to claim 36, wherein said electro-optical device is disposed adjacent said bottom cover.

10 42. An optoelectronic packaging assembly according to claim 41, wherein said pins include exposed contact surfaces inside said optoelectronic packaging assembly, and further including conductors electrically connecting said optical bench to said exposed contact surfaces.

15 43. An optoelectronic packaging assembly according to claim 25, wherein said pins include exposed contact surfaces inside said optoelectronic packaging assembly.

44. An optoelectronic packaging assembly according to claim 25, wherein said submount includes a liquid crystal polymer.

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45. An optoelectronic packaging assembly according to claim 25, wherein said submount includes a metal.

46. An optoelectronic packaging assembly, comprising:
a base having a bottom wall and a front wall with a protruding optical input
receptacle;
a submount attached to said bottom wall; and
5 a heat-sink that mates with said base to form an enclosed volume, said heat-sink
including a top surface with a slot; and
an insert in said slot, said insert including pins that extend into said enclosed volume.

47. An optoelectronic packaging assembly according to claim 46, wherein said heat-
10 sink includes cooling fins.

48. An optoelectronic packaging assembly according to claim 46, wherein said
submount is comprised of a liquid crystal polymer.

15 49. An optoelectronic packaging assembly according to claim 46, wherein said pins
have rectangular cross-sections.

50. An optoelectronic packaging assembly according to claim 46, wherein said pins
have circular cross-sections.

20 51. An optoelectronic packaging assembly according to claim 46, wherein said pins
are insert molded in said insert.

52. An optoelectronic packaging assembly according to claim 46, wherein said optical input receptacle includes a half-moon shaped slot.

53. An optoelectronic packaging assembly according to claim 46, further including an optical bench on said submount.

54. An optoelectronic packaging assembly according to claim 53, further including an electro-optical device on said optical bench.

55. An optoelectronic packaging assembly according to claim 54, wherein said optical bench includes an alignment slot.

56. An optoelectronic packaging assembly according to claim 55, further including an optical ferrule in said optical fiber input receptacle.

57. An optoelectronic packaging assembly according to claim 56, further including an optical fiber inserted into said optical ferrule.

58. An optoelectronic packaging assembly according to claim 57, wherein said electro-optical device is optically coupled to said optical fiber.

59. An optoelectronic packaging assembly according to claim 54, wherein said optical bench includes a plurality of contacts in electrical contact with said pins.

60. An optoelectronic packaging assembly according to claim 46, wherein said submount includes a liquid crystal polymer.

5 61. An optoelectronic packaging assembly according to claim 46, wherein said submount includes a metal.

62. An optoelectronic packaging assembly according to claim 54, wherein said electro-optical device is disposed on said optical bench opposite said submount.

10 63. An optoelectronic packaging assembly, comprising:
a base having a plate and a front wall with an optical input receptacle;
a submount on said plate;
an optical bench on said submount, said optical bench including a plurality of electrical contacts;
15 a heat-sink in thermal communication with said plate; and
an insert with pins that electrically connect to said plurality of electrical contacts.

64. An optoelectronic packaging assembly according to claim 63, wherein said heat-sink includes cooling fins.

20 65. An optoelectronic packaging assembly according to claim 63, wherein said pins have rectangular cross-sections.

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66. An optoelectronic packaging assembly according to claim 63, wherein said pins have circular cross-sections.

67. An optoelectronic packaging assembly according to claim 63, wherein said pins are insert molded in said insert.

68. An optoelectronic packaging assembly according to claim 63, wherein said optical input receptacle includes a half-moon shaped slot.

69. An optoelectronic packaging assembly according to claim 63, further including an optical ferrule in said optical fiber input receptacle.

70. An optoelectronic packaging assembly according to claim 69, further including an optical fiber inserted into said optical ferrule.

71. An optoelectronic packaging assembly according to claim 63, further including an electro-optical device on said optical bench.

72. An optoelectronic packaging assembly according to claim 71, wherein said electro-optical device is disposed on said optical bench opposite said submount.

73. An optoelectronic packaging assembly according to claim 72, wherein said electro-optical device is optically coupled to said optical fiber.

74. An optoelectronic packaging assembly according to claim 63, wherein said submount includes a liquid crystal polymer.

5 75. An optoelectronic packaging assembly according to claim 62, wherein said submount includes a metal.